

Amendments to the Claims

Please cancel Claims 1-2, 11-12, 21-22, and 26-28. Please add new Claims 42-53. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Cancelled)
2. (Cancelled)
3. (Previously Presented) A gas regulator comprising:
 - a delivery valve assembly comprising a delivery outlet and a delivery valve member moveable within the delivery valve assembly between a closed position and an open position for controlling flow of a gas through the delivery outlet;
 - a timing gas chamber for receiving gas, gas pressure within the timing gas chamber controlling the movement of the delivery valve member; and
 - an adjustment system for controlling the amount of time required for the gas to sufficiently fill the timing gas chamber to control the length of time that the delivery valve member is in the open position, the adjustment system including a volume adjustment device for selectively adjusting the volume of the timing gas chamber.
4. (Previously Presented) The gas regulator of Claim 3 in which the volume adjustment device includes an adjustable piston.
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)

8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Cancelled)
13. (Previously Presented) A method of regulating gas with a gas regulator comprising:
 - providing a delivery valve assembly comprising a delivery outlet and a delivery valve member moveable within the delivery valve assembly between a closed position and an open position for controlling flow of a gas through the delivery outlet;
 - receiving gas in a timing gas chamber, gas pressure within the timing gas chamber controlling the movement of the delivery valve member; and
 - controlling the amount of time required for the gas to sufficiently fill the timing gas chamber with an adjustment system to control the length of time that the delivery valve member is in the open position, the adjustment system including a volume adjustment device for selectively adjusting the volume of the timing gas chamber.
14. (Original) The method of Claim 13 further comprising providing the volume adjustment device with an adjustable piston.
15. (Cancelled)
16. (Cancelled)
17. (Cancelled)
18. (Cancelled)

19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Previously Presented) The gas regulator of Claim 3 wherein the volume adjustment device includes an adjustment member that can be selectively positioned by a user.
24. (Previously Presented) The gas regulator of Claim 3 in which the adjustment system includes an orifice member having more than one orifice, each of a different size, which can be selectively positioned for selecting the flow rate of the gas into the timing gas chamber.
25. (Previously Presented) The device of Claim 3 wherein the delivery valve member is a flexible membrane.
26. (Cancelled)
27. (Cancelled)
28. (Cancelled)
29. (Previously Presented) The method of Claim 13 wherein the volume adjustment device includes an adjustment member that can be selectively positioned by a user.
30. (Previously Presented) The gas regulator of Claim 13 in which the adjustment system includes an orifice member having more than one orifice, each of a different size, which

can be selectively positioned for selecting the flow rate of the gas into the timing gas chamber.

31. (Previously Presented) The method of Claim 13 wherein the delivery valve member is a flexible membrane.
32. (Previously Presented) A medical gas conserving device for delivery a fixed volume of medical gas to a patient in response to an inhalation, comprising:
 - a timing gas chamber for storing a user-adjustable volume of gas up to a first pressure;
 - a vent to exhaust the gas stored in the timing gas chamber to atmosphere;
 - a pilot valve disposed between the timing gas chamber and the vent, the pilot valve biased in a closed position to inhibit gas flow from the timing gas chamber to the vent, the pilot valve in gas communication with a patient via a passage such that a vacuum in the passage opens the pilot valve to allow gas flow from the timing gas chamber to the vent; and
 - a slave valve disposed between a regulated supply of medical gas and a delivery passage to the patient, the slave valve in gas communication with the timing gas chamber such that when gas in the timing gas chamber is at the first pressure the slave valve is in a closed position to inhibit the flow of medical gas from the regulated supply to the delivery passage, and when gas in the timing gas chamber is below the first pressure the slave valve is in an opened position to allow medical gas to flow from the regulated supply to the delivery passage.
33. (Previously Presented) The device of Claim 32 wherein the timing gas chamber includes a moveable piston acting as a wall of the timing gas chamber, the moveable piston being positionable by a user to adjust the volume of the timing gas chamber.
34. (Previously Presented) The device of Claim 32 wherein the first pressure is determined by the area of an orifice.

35. (Previously Presented) The device of Claim 34 wherein the orifice is selected from a plurality of orifices, each orifice having a respective area.
36. (Previously Presented) The device of Claim 32 wherein the delivery valve member is a flexible membrane.
37. (Previously Presented) A method of manufacturing a medical gas conserving device for delivery a fixed volume of medical gas to a patient in response to an inhalation, comprising:
- forming a timing gas chamber for storing a user-adjustable volume of gas up to a first pressure;
 - forming a vent to exhaust the gas stored in the timing gas chamber to atmosphere;
 - disposing a pilot valve between the timing gas chamber and the vent, the pilot valve being biased in a closed position to inhibit gas flow from the timing gas chamber to the vent, the pilot valve in gas communication with a patient passage such that a vacuum in the passage opens the pilot valve to allow gas flow from the timing gas chamber to the vent; and
 - disposing a slave valve between a regulated supply of medical gas and a delivery passage to the patient, the slave valve in gas communication with the timing gas chamber such that when gas in the timing gas chamber is at the first pressure the slave valve is in a closed position to inhibit the flow of medical gas from the regulated supply to the delivery passage, and when gas in the timing gas chamber is below the first pressure the slave valve is in an opened position to allow medical gas to flow from the regulated supply to the delivery passage.
38. (Previously Presented) The method of Claim 37 wherein forming the timing gas chamber includes forming a moveable piston to act as a wall of the timing gas chamber, the moveable piston being positionable by a user to adjust the volume of the timing gas chamber.

39. (Previously Presented) The method of Claim 37 further comprising forming an orifice having an area dimensioned to provide the first pressure.
40. (Previously Presented) The method of Claim 39 wherein forming the orifice comprises fabricating a plurality of selectable orifices, each orifice having a respective area.
41. (Previously Presented) The method of Claim 37 wherein the delivery valve member is a flexible membrane.
42. (New) The device of Claim 32 further comprising an adjustment system for providing the first pressure, the adjustment system including an orifice member having more than one orifice, each of a different size, which can be selectively positioned for selecting the flow rate of the gas into the timing gas chamber.
43. (New) The method of Claim 37 further comprising fabricating an adjustment system for providing the first pressure, the adjustment system including an orifice member having more than one orifice, each of a different size, which can be selectively positioned for selecting the flow rate of the gas into the timing gas chamber.
44. (New) A medical gas conserving device for delivery a fixed volume of medical gas to a patient in response to an inhalation, comprising:
 - a timing gas chamber for storing a user-adjustable volume of gas up to a first pressure, wherein the timing gas chamber includes a moveable piston acting as a wall of the timing gas chamber, the moveable piston being positionable by a user to adjust the volume of the timing gas chamber;
 - a vent to exhaust the gas stored in the timing gas chamber to atmosphere;
 - a pilot valve disposed between the timing gas chamber and the vent, the pilot valve biased in a closed position to inhibit gas flow from the timing gas chamber to the vent, the pilot valve in gas communication with a patient via a passage such that a vacuum in the passage opens the pilot valve to allow gas flow from the timing gas chamber to the vent; and

a slave valve disposed between a regulated supply of medical gas and a delivery passage to the patient, the slave valve in gas communication with the timing gas chamber such that when gas in the timing gas chamber is at the first pressure the slave valve is in a closed position to inhibit the flow of medical gas from the regulated supply to the delivery passage, and when gas in the timing gas chamber is below the first pressure the slave valve is in an opened position to allow medical gas to flow from the regulated supply to the delivery passage.

45. (New) The device of Claim 44 wherein the first pressure is determined by the area of an orifice.
46. (New) The device of Claim 45 wherein the orifice is selected from a plurality of orifices, each orifice having a respective area.
47. (New) The device of Claim 44 wherein the delivery valve member is a flexible membrane.
48. (New) The device of Claim 44 further comprising an adjustment system for providing the first pressure, the adjustment system including an orifice member having more than one orifice, each of a different size, which can be selectively positioned for selecting the flow rate of the gas into the timing gas chamber.
49. (New) A method of manufacturing a medical gas conserving device for delivery a fixed volume of medical gas to a patient in response to an inhalation, comprising:
 - forming a timing gas chamber for storing a user-adjustable volume of gas up to a first pressure including forming a moveable piston to act as a wall of the timing gas chamber, the moveable piston being positionable by a user to adjust the volume of the timing gas chamber;
 - forming a vent to exhaust the gas stored in the timing gas chamber to atmosphere;
 - disposing a pilot valve between the timing gas chamber and the vent, the pilot valve being biased in a closed position to inhibit gas flow from the timing gas chamber to the vent, the pilot valve in gas communication with a patient passage such that a vacuum

in the passage opens the pilot valve to allow gas flow from the timing gas chamber to the vent; and

disposing a slave valve between a regulated supply of medical gas and a delivery passage to the patient, the slave valve in gas communication with the timing gas chamber such that when gas in the timing gas chamber is at the first pressure the slave valve is in a closed position to inhibit the flow of medical gas from the regulated supply to the delivery passage, and when gas in the timing gas chamber is below the first pressure the slave valve is in an opened position to allow medical gas to flow from the regulated supply to the delivery passage.

50. (New) The method of Claim 49 further comprising forming an orifice having an area dimensioned to provide the first pressure.
51. (New) The method of Claim 50 wherein forming the orifice comprises fabricating a plurality of selectable orifices, each orifice having a respective area.
52. (New) The method of Claim 49 wherein the delivery valve member is a flexible membrane.
53. (New) The method of Claim 49 further comprising fabricating an adjustment system for providing the first pressure, the adjustment system including an orifice member having more than one orifice, each of a different size, which can be selectively positioned for selecting the flow rate of the gas into the timing gas chamber.